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American Medical Association, June 6, 1908). A special report on this disease has been submitted to the Surgeon-General (Public Health Reports, July 10, 1908, Vol. XXIII, No. 28).

I am indebted to Passed Asst. Surgs. Carroll Fox and Richard Creel for assistance in the histological work reported in these notes.

*Identification of Fleas at San Francisco, Cal.*

[By Passed Assistant Surgeon CARROLL FOX.]

In connection with plague suppressive measures in San Francisco, a routine examination has been made of fleas in the Federal laboratory since April 7, 1907. This work has been carried on in order to determine the different species of fleas and the predominant species infesting rats in San Francisco. Since July 1, 1908, an effort has been made to determine the species in relation to the number on individual rats. District officers have been ordered to bring the rats trapped alive to the district headquarters, where they are chloroformed, and an immediate search is made for siphonaptera. The fleas from each rat are then put in 70 per cent alcohol in separate bottles and forwarded to the laboratory properly labeled with the date, host, and district.

In all, 7,022 specimens have been examined to July 31, 1908, including 1,271 fleas from man. The figures given in detail below show that the *Ceratophyllus fasciatus* is the common rat flea in this locality, while the *Pulex cheopis* follows, not a very close second, the proportion being about three to one. Most of the *Pulex cheopis* have come from districts 4, 6, and 12. Districts 4 and 6 are inside districts, while district 12 is on the water front. From districts 4 and 6 a *Mus rattus* is very rarely caught, showing that there is no relation between the Indian rat and the Indian rat flea. The number of fleas per rat varies greatly; many rats seem not to be infested at all, while from one rat 157 fleas were obtained. Not including the rat with 157 fleas, the average number of fleas per rat is 4.5.

It will be noticed that of the 1,271 fleas taken from man, not one was a *cheopis* and only 4 were *Ceratophyllus fasciatus*, the common rat flea here. The finding of these might be accounted for by the fact that they were taken by the rat catchers from their own persons.

Host.	C. fasciatus.		P. cheopis.		P. irritans.		Cten. musculi.		C. canis.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>Mus norvegicus</i> .....	1,343	2,510	485	837	31	76	78	211	16	31	5,618
<i>Mus rattus</i> .....	23	43	3	3	0	0	17	16	1	0	106
<i>Mus musculus</i> .....	4	10	1	0	0	0	2	10	0	0	27
<i>Homo sapiens</i> .....	0	4	0	0	500	764	0	0	2	1	1,271
Total fleas examined to July 31, 1908 .....											7,022

These figures do not include several hundred specimens obtained from other hosts, such as *C. acutus* and *Hoplopsyllus anomalus* from *Cetellus Beecheyi*; *C. ignotus* from *Thomomys Botta*, and several other species not yet identified.